UNIVERSITY of TECHNOLOGY, MAURITIUS

School of Innovative Technologies and Engineering
Department of Industrial Systems Engineering

Diploma in Architectural Studies

PROGRAMME DOCUMENT

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University of Technology, Mauritius
La Tour Koenig, Pointe aux Sables, Mauritius
Tel: (230) 234 7624 *Fax:* (230) 234 1747 *Email:* sobise@utm.intnet.mu
website: www.utm.ac.mu

Diploma in Architectural Studies

A. PROGRAMME INFORMATION

The Diploma programme is designed to give the students the necessary skills to participate in the real estate development and construction process, to provide an overview of key architectural movements from ancient to early modern periods, alongside an overview of the historical, social, rural and urban and technological developments that influenced the production of built structures, to analyze building development proposals, to use CAD software in the construction industry, to advise on appropriate means of procurement, to pursue financial control of construction projects and to employ a multi-disciplinary approach to the management of construction processes.

B. PROGRAMME AIMS

The Diploma programme aims to provide a foundation upon which you can build a successful career. This programme has been created to provide you with the skills and abilities required by Architectural firms and private architects.

Employment Prospects

There are many and varied career opportunities for highly qualified technicians in the Architectural / Construction industries. Possible employment includes Architectural Technical Officer, Assistant to Architect, Clerk of work, Site Agent etc.

C. PROGRAMME OBJECTIVES

After successful completion of the programme, the graduates should

- achieve the understanding of simple building construction and materials and the ability to apply them to analyse key architectural processes;
- develop the ability to apply architectural methods and computer software in order to solve industrial problems;
- acquire knowledge of management techniques which may be used to achieve objectives;
- acquire knowledge of relevant legal requirements governing architectural activities, including personnel, health, safety and risk;
- achieve the understanding of the need for a high level of professional and ethical conduct in architectural fields;

PART I

REGULATIONS

D. GENERAL ENTRY REQUIREMENTS

As per UTM'S Admission Regulations, and 'Admission to Programmes of Study at First Degree Level'.

E. PROGRAMME ENTRY REQUIREMENTS

'A' Level in Mathematics and one science subject or any other applied science subject at HSC, GCE "A" Level or Baccalaureate or alternative Advanced level acceptable to APL/APEL committee

F. PROGRAMME MODE AND DURATION

Full Time: 2 years
Part Time: 3 years

SEMESTER : 15 Weeks (Excluding Exam Period)

G. TEACHING AND LEARNING STRATEGIES

- Lectures, Tutorials and Practicals
- Class Tests and Assignments
- Industrial Project
- Workshops / Seminars / Lab Sessions
- Structured Discussions & Self Directed Study
- Case Study material & scenarios centred on real world problems

H. STUDENT SUPPORT AND GUIDANCE

- Academic Tutoring: 2 hours per week per module
- Intensive tutoring conducted during Week 8 of the semester

I. ATTENDANCE REQUIREMENTS

As per UTM's Regulations and Policy.

J. CREDIT SYSTEM

1 module = 3/6 credits Total = 72 credits

K. STUDENT PROGRESS AND ASSESSMENT

The course is delivered through lectures and seminars, and computer and practical laboratory sessions. Self-directed study is also important and will include reading, designing and preparing presentations, writing essays, and investigating problems and examples.

For the award of the Degree, all modules must be passed overall with passes in the examinations, coursework and other forms of assessment.

All modules will carry 100 marks and will be assessed as follows (unless otherwise specified):

Written examinations up to a maximum of 3-hours' duration and continuous assessment carrying up to a maximum of 50% of total marks. Continuous assessment can be based on seminars and/or assignments or class tests.

The final dissertation/project will carry 200 marks (6 credits)

Maximum marks attainable:

Level 1	1200
Level 2	1200

GRADING

Grade	Marks x (%)
A	$x \geq 70$
A-	$65 \leq x < 70$
B	$60 \leq x < 65$
B-	$55 \leq x < 60$
C	$50 \leq x < 55$
C-	$45 \leq x < 50$
D	$40 \leq x < 45$
F	$x < 40$

A-D	Pass
F	Fail

L. EVALUATION OF PERFORMANCE

(i) The % mark at Level 1 contributes a 40% weighting towards the degree classification.

(ii) The % mark at Level 2 contributes a 60% weighting towards the degree classification.

M. AWARD CLASSIFICATION

Overall weighted mark y (%)	Classification
$y \geq 70$	Diploma with Distinction
$40 \leq y < 70$	Diploma
$y < 40$	No Award

N. PROGRAMME ORGANISATION AND MANAGEMENT

Programme Director/Coordinator: Mr. XXXX XXXX

Contact Details : Tel: 234-7624 Fax: 234-1767

Email: xxxx@utm.intnet.mu

PART II

O. PROGRAMME STRUCTURE (Full-Time)

Diploma in Architectural Studies

YEAR 1 (Level 1) Certificate in Architectural Studies							
Semester 1				***Semester 2***			
Code	**Modules**	**Hrs/Wk** L P	**Credits**	**Code**	**Modules**	**Hrs/Wk** L P	**Credits**
ARCS1101	Materials and Construction	3 + 0	3	ARCS1106	Structural Systems	3 + 0	3
ARCS1102	Theory of Architectural Design	3 + 0	3	ARCS1107	Architectural Draughtsmanship	1 + 3	3
ARCS1103	Climates and Architecture	3 + 0	3	ARCS1108	Timber Framing Systems	3 + 0	3
MATHXXXX	Maths for Architecture	3 + 0	3	ARCS1109	Energy Efficiency in Building	3 + 0	3
ARCS1104	History of Architecture and Culture	3 + 0	-	ARCS1104	History of Architecture and Culture	3 + 0	6
ARCS1105	Fine Arts	1 + 3	3	MICS1101	Sociology of work	3 + 0	3

Inter Level Activity			
Code	**Modules**	**Hrs/Wk** L P	**Credits**
PLAC1101	Industrial Placement	4 weeks	No credit, but Compulsory

YEAR 2 (Level 2) Diploma in Architectural Studies							
Semester 1				***Semester 2***			
Code	**Modules**	**Hrs/Wk** L P	**Credits**	**Code**	**Modules**	**Hrs/Wk** L P	**Credits**
ARCS2101	Computer Aided Architectural Design	1 + 3	3	MICS2102	Health and Safety Management	3 + 0	3
ARCS2102	Concrete Technology Fundamentals	3 + 0	3	ARCS2106	Principles of Surveying	3 + 0	3
ARCS2103	Urban Designs	3 + 0	3	ARCS2107	Introduction to Building Systems	3 + 0	3
MICS2101	Communication Skills and Research Writing	3 + 0	3	ARCS2108	Building Services and Circulation Systems	3 + 0	3
ARCS2104	Architectural Practices, Contract and Tendering	3 + 0	3	MPRJ101	Architectural Mini Project	-	6
ARCS2105	Project Management for Construction firms	3 + 0	3				

P. PROGRAMME STRUCTURE (Part-Time)

Diploma in Architectural Studies

YEAR 1							
Semester 1				***Semester 2***			
Code	**Modules**	**Hrs/Wk** L P	**Credits**	**Code**	**Modules**	**Hrs/Wk** L P	**Credits**
ARCS1101	Materials and Construction	3 + 0	3	ARCS1102	Theory of Architectural Design	3 + 0	-
ARCS1104	History of Architecture and Culture	3 + 0	3	ARCS1105	Fine Arts	1 + 3	3
ARCS1103	Climates and Architecture	3 + 0	-	ARCS1103	Climates and Architecture	3 + 0	6
MATHXXXX	Maths for Architecture	3 + 0	3	ARCS1107	Architectural Draughtsmanship	1 + 3	3
➔ Start of Level 1							

YEAR 2							
Semester 1				***Semester 2***			
Code	**Modules**	**Hrs/Wk** L P	**Credits**	**Code**	**Modules**	**Hrs/Wk** L P	**Credits**
ARCS1106	Structural Systems	3 + 0	3	ARCS2101	Computer Aided Architectural Design	1 + 3	3
ARCS1108	Timber Framing Systems	3 + 0	3	ARCS2102	Concrete Technology Fundamentals	3 + 0	3
ARCS1109	Energy Efficiency in Building	3 + 0	3	ARCS2103	Urban Designs	3 + 0	3
MICS1101	Sociology of work	3 + 0	3	MICS2101	Communication Skills and Research Writing	3 + 0	3
End of Level 1 ➔				➔*Start of Level 2*			

Inter Level Activity			
Code	**Modules**	**Hrs/Wk** L P	**Credits**
PLAC1101	Industrial Placement	4 weeks	No credit, but Compulsory

YEAR 3							
Semester 1				***Semester 2***			
Code	**Modules**	**Hrs/Wk** L P	**Credits**	**Code**	**Modules**	**Hrs/Wk** L P	**Credits**
MICS2102	Health and Safety Management	3 + 0	3	ARCS2106	Principles of Engineering Surveying	3 + 0	3
ARCS2104	Architectural Practices, Contract and Tendering	3 + 0	3	ARCS2107	Introduction to Building Systems	3 + 0	3
ARCS2105	Project Management for Construction Industries	3 + 0	3	ARCS2108	Building Services and Circulation Systems	3 + 0	3
MPRJ101	Architectural Mini Project		-	MPRJ101	Architectural Mini Project	-	6
End of Level 2 ➔							

Q. MODULE OUTLINE

ARCS1101: MATERIALS AND CONSTRUCTION (3+0)
Tensile strength, wrought iron, cast iron, modulus of elasticity, Portland cement, annealing, briquettes, shearing stress, manganese, tensile stress, phosphorus, ductility, open-hearth process, mortar, Bessemer process, silica, tracheids, red-shortness, specific gravity, compressive stress.

ARCS1108: TIMBER FRAMING SYSTEMS
Introduction to timber framing systems; balloon framing; platform framing and Cladding systems (walls, floors, ceilings, etc.).

ARCS1104: HISTORY OF ARCHITECTURE AND CULTURE
Movements from early to modern periods, historical, social and technological developments. Physical and cultural context. Cultural survey of architectural practices in Mauritius including the indigenous architecture of the various climatic belts. European influence and contemporary practice, rural studies

ARCS1102: THEORY OF ARCHITECTURAL DESIGN
The component of Architectural Design. The History of design profession and the role of the Architect, His/her social and moral responsibilities. The relationship between the Architect, Clients and other Consultants. Introduction to design methodology, the design process, design philosophies and approaches.

ARCS1103: CLIMATES AND ARCHITECTURE
Building climatology; weather and climate; meteorological variables; classification of climates, Climate design studies; airflow around buildings; heat exchange between man and his environment; thermal comfort indices and psychrometry.

MATHXXX**: MATHEMATICS FOR ARCHITECTS**
Quadratic equations, Complex numbers, Logarithms and their properties, Sequence and series, Permutations and combinations, Trigonometry, Polar coordinates, Hyperbolic functions, Vectors and matrices, Analytical geometry: 2D and 3D, Derivatives, limits, continuity and differentiability, Partial fraction and integration, Solving first order linear ordinary differential equations, Basic probability and statistics

ARCS1106: STRUCTURAL SYSTEMS
Overview of structural theory and common engineering terminology; modern methods of structural analysis. Structural forms – configurations and components; graphic representation of structural behaviour and systematic analysis.

ARCS1105: FINE ARTS (1+3)
Overview of arts. Sculpture, painting, architecture, and decoration in their history, development, and principles

ARCS1107: ARCHTECTURAL DRAUGHTSMANSHIP (1+3)
Geometric: Isometric and Perspective Projection, Plano metric, Line of intersection, Freehand Drawing, Etching, Water-Colour Perspective, shadow projection.

ARCS1108: ENERGY EFFICIENCY IN BUILDING
Energy efficiency, energy crisis, future availability and cost of energy, current energy situation, reducing building energy consumption, energy audits, building structures (interior and exterior surfaces), heat gain and lost, solar radiation and gain through windows, building energy systems, control systems for energy conservation.

MICS2101: COMMUNICATION SKILLS AND RESEARCH WRITING (3+0)
Development of key communication skills required by an Assistant to architect/technical officer/site agent, Techniques for presentation, interviewing, meetings, Research in general, Techniques and methodology, Fieldwork, case study, archival and documentary study, observation and audio-visual study, cadastral measurements and measured drawings, literature review and use of questionnaire, Preparation of reports.

MICS1101: SOCIOLOGY OF WORK (3+0)
Critical examination of changing nature of work in Mauritius (building construction, service) ;changes in variety and pattern of employment relation, hours of work, patterns of reward and remuneration; employee representation and forms of employee participation; effects of social, demographic and macro economics forces such (industrialisation and technological advances) on labour market, gender and ethnicity, patterns of education and skill formation, globalisation etc. Families' adaptation to these changes; Future shape of employment in Mauritius.

PLAC1101: INDUSTRIAL PLACEMENT (4 WEEKS)
The aim of this short time placement is to offer students the opportunity to experience a range of employment in architectural practices and in other activities that are related to the academic and professional nature of the course.

ARCS2101: COMPUTER AIDED ARCHITECTURAL DESIGN (1+3)
Creating basic drawing elements, editing and manipulation, adding text, dimensions, understanding the user coordinate system, creating and editing 3D objects, plotting, rendering.

ARCS2102: CONCRETE TECHNOLOGY FUNDAMENTALS
Introduction to basic concrete and composite construction; systems of construction; foundations and roofing systems.

ARCS2104: ARCHITECTURAL PRACTICES, CONTRACTS AND TENDERING
Cultural survey of architectural practices in Mauritius including the indigenous architecture of the various climatic belts. European influence and contemporary practice. A summary of the law as it relates to Architects, Building Regulations , Town and county planning legislation and procedure, reserved matters , local planning authority , Listed buildings, Housing law, building or structure , Building Regulations, Laws of Contracts and legislations, Tender documents.

ARCS2105: PROJECT MANAGEMENT FOR ARCHTECTURAL INDUSTRIES (3+0)
Concepts of economics of scale, economic of the construction industry, organization and management of architecture office, Project Management Fundamentals, Feasibility Study for Building Construction projects, Project Planning, Project organization, Techniques for Project Scheduling, Resource management, Risk management, Budgeting & Cost Management, Procurement management, Project Monitoring, Project Evaluation and Termination

ARCS2103: URBAN DESIGNS
Urban environment. Urbanization and the development of cities. Housing typologies, density and study of low-cost housing. Conceptual and space planning principles including site planning and landscape design.

ARCS2106: PRINCIPLES OF SURVEYING
Survey of small areas for producing large-scale plans for all purposes; chain surveying, compass surveying, spirit levelling, contouring, simple plane co-ordinate calculations, calculation of areas, errors in general, errors in chaining and leveling, Surveying of site and setting out of simple building projects; theodolite surveying and area/volume calculations.

ARCS2107: INTRODUCTION TO BUILDING SYSTEMS
Introduction to building components and more specialized aspects of building systems e.g. Special doors – shutter, sliding, grille, automatic etc; vertical circulation system (e.g. reinforced concrete stairs) and expansion/construction joints.

MICS2102: HEALTH AND SAFETY MANAGEMENT
Safety culture and safety climate, Behaviour based safety, Integrated safety and quality management systems, Safety professions, Ergonomics, Device and Material handling, Accident investigation, medical management, and emergency planning, Electrical Hazard identification and control, working surfaces, Written safety programs, Safety Engineering, Work design, human factors, and accident causation, Management commitment and employee participation in safety programs, Review of hazardous substances, Fire hazards.

ARCS2108: BUILDING SERVICES AND CIRCULATION SYSTEMS
Introduction to plumbing design/layout; water supply/distribution and electricity supply/layout in buildings; drainage and sewage disposal in buildings and vertical circulation systems.

MPRJ101: ARCHITECTURAL MINI PROJECT